September 13, 2004

MEMORANDUM TO: Mary Jane Ross-Lee, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Christopher Gratton, Sr. Project Manager, Section 1 ***/RA/***
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: VOGTLE ELECTRIC GENERATING STATION, UNITS 1 AND 2 - FACSIMILE TRANSMISSION OF DRAFT REQUEST FOR ADDITIONAL INFORMATION (TAC NOS. MC2225, MC2226, MC1029, MC1030, MC3046, AND MC3047)

The purpose of this memorandum is to document questions sent to the licensee for various licensing actions.

Attachment 1 contains questions transmitted to Mr. Jack Stringfellow of the Southern Nuclear Operating Company (SNC) on August 23, 2004, regarding SNC's application dated February 26, 2004, requesting changes to the Pressure and Temperature Limits Report. The questions will be discussed in a conference call tentatively scheduled for September 14, 2004.

Attachment 2 contains questions transmitted to Mr. Jack Stringfellow of SNC on August 3 and 25, 2004, regarding SNC's application dated October 26, 2003, requesting changes to the revise technical specifications for DC Sources (TSTF-360). The questions were used to support conference calls held on August 5 and 25, and September 2, 2004.

This memorandum and the attached questions do not convey or represent an NRC staff position regarding the licensee's request.

Docket Nos. 50-424 and 50-425

Attachments:
1. Request for Additional Information sent 8/23/2004
2. Request for Additional Information sent 8/3 and 25/2004

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DRAFT
REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATION REVISION AND PTLR
VOGTLE UNITS 1 AND 2
SOUTHERN NUCLEAR OPERATING COMPANY
DOCKET NUMBERS 50-424 AND 50-425

Pressure-Temperature (P-T) limits (TAC Nos. MC2225 AND MC2226)

1.1 Figure 5-1 (for 26 EFPY) of WCAP-15068, Revision 3, "Vogtle Electric Generating Plant Unit 1 Heatup and Cooldown Limit Curves for Normal Operation," shows that the heatup curve for 100 °F/hr maintains a constant pressure of 748 psig from 60 °F to 90 °F; instead of a smooth, pressure varying P-T limit curve derived directly from the American Society of Mechanical Engineers (ASME) Code, Section XI, Appendix G methodology as described in Section 3 of this WCAP. Provide the basis and detailed calculations for this part of the P-T limit curve. A similar concern applies to Figure 5-3 (for 36 EFPY) of WCAP-15068, Revision 3 and Figure 5-1 (for 26 EFPY) and Figure 5-3 (for 36 EFPY) of WCAP-15161, Revision 3, "Vogtle Electric Generating Plant Unit 2 Heatup and Cooldown Limit Curves for Normal Operation." No justification is required for these P-T limit curves if it is the same as that for Figure 5-1 of WCAP-15068, Revision 3. However, if this concern results in a revision of the proposed P-T limits, all four figures mentioned above should be revised.

1.2 There are moderate discrepancies between your P-T limits and those calculated by the staff using the formulas (not the alternative K_{It} formula) in Section 3 of this WCAP. For the 100 °F/hr cooldown curve, please provide RPV bulk water temperature, 1/4T metal temperature, K_{Im}, and K_{It} for P-T pairs (582 psi, 65 °F) and (948 psi, 110 °F); for the 100 °F/hr heatup curve, provide reactor pressure vessel (RPV) bulk water temperature, 3/4T metal temperature, K_{Im}, and K_{It} for P-T pairs (733 psi,100 °F) and (2344 psi, 225 °F). Further, provide the thermal diffusivity that you used in your thermal calculations.

Exemption to eliminate the RPV closure head and vessel flange requirements (TAC Nos. MC2227 AND MC2228)

2.1 Confirm that the results plotted in Figures 4-1 and 4-2 of WCAP-16142-P, Revision 1, "Reactor Vessel Closure Head/Vessel Flange Requirements Evaluation for Vogtle Units 1 and 2," are based on a heatup rate of 100 °F/hr and the operating RPV pressure. In addition, the submitted information is not enough for the staff to assess the changing margin during the heatup or cooldown. Please revise Figures 4-1 and 4-2 by applying the ASME Code, Section XI, Appendix G structural factor of 2 to the applied stress intensity factors due to pressure and boltup loading and the ASME Code, Section XI, Appendix G structural factor of 1 to the applied stress intensity factor due to thermal loading. For both torus to flange region weld (Cut 3) and dome to torus region weld (Cut 2), provide the RPV temperatures at a/t ratios of 0.1 and 0.25 at the following specific moments of time after heatup or cooldown: 82, 207.4, 344.2, 355, 375, and 405 minutes after heatup; 421 minutes after cooldown; and the steady state condition at 406 minutes). The staff needs these crack-tip temperature values to calculate the appropriate K_{Ic} values.

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REQUESTS FOR ADDITIONAL INFORMATION
DC SOURCES AND TSTF-360, REVISION 1
SOUTHERN NUCLEAR OPERATING COMPANY
VOGTLE ELECTRIC GENERATING PLANT, UNITS I AND 2
DOCKET NUMBERS: 50-424 AND 50-425
[August 5, 2005]

In the licensee's October 13, 2004 submittal, it is stated that if a SBO [Station Blackout] were to occur during the time that the battery of system C was inoperable, the capability to provide auxiliary feedwater would be adversely affected.

Additionally, in the licensee's October 13, 2004 submittal, manual action is credited for successful operation (when Battery C is unavailable) of the Turbine Driven Auxiliary Feedwater Pump (TDAFWP).

As stated above, GDC 17 requires, in part, that nuclear power plants have provisions to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies. GDC 17 also requires that the onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

Furthermore, the initial conditions of Design Basis Accident (DBA) and transient analyses in the Vogtle FSAR, Chapter 6, and in the FSAR, Chapter 15, assume that ESF systems are operable. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The operability of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining the DC sources operable during accident conditions in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power; and

b. A worst case single failure

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Since Battery C would be unable to provided its safety design function when called upon during the proposed extended battery Completion Time, how much time is required to manually operate the TDAFWP? Additionally, if Battery C was declared inoperable, would an operator be stationed at the TDAFWP?

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REQUESTS FOR ADDITIONAL INFORMATION
DC SOURCES
SOUTHERN NUCLEAR OPERATING COMPANY
VOGTLE ELECTRIC GENERATING PLANT, UNITS I AND 2
DOCKET NUMBERS: 50-424 AND 50-425
[August 25, 2004]

During a conference call between Southern Nuclear operating Company (SNC) staff and Nuclear Regulatory Commission (NRC) staff held on August 25, 2004, the NRC staff requested that the following information be provided to complete their review of SNC's application dated October 13, 2003:

1) Prior to utilizing the battery Completion Time greater than 2 hours, would the Standby Auxiliary Transformer be verified available (similar to Required Action B.2 of LCO 3.8.1 Condition B)?

2) When a battery is declared inoperable, would you declare required feature(s) supported by the inoperable battery, inoperable when the redundant required feature(s) are inoperable (similar to Required Action B.3 of LCO 3.8.1 Condition B)?